

CLAIMS:

- Sub B1
1. An electro-chemical deposition system, comprising:
- a) a mainframe having a mainframe wafer transfer robot;
  - b) a loading station disposed in connection with the mainframe;
  - c) one or more processing cells disposed in connection with the mainframe;
  - d) an electrolyte supply fluidly connected to the one or more electrical processing cells;
  - e) a spin-rinse-dry (SRD) chamber disposed between the loading station and the mainframe; and
  - f) a thermal anneal chamber disposed adjacent the loading station.

2. The system of claim 1 wherein the thermal anneal chamber comprises a rapid thermal anneal chamber having a heater plate.

3. The system of claim 2 wherein the heater plate comprises an atmospheric pressure heater plate.

- Sub C2
4. The system of claim 1, further comprising:
- e) a system controller adapted to control operations of one or more components of the electro-chemical deposition system.

5. The system of claim 4, wherein the thermal anneal chamber further comprises a gas inlet adapted to introduce one or more gases into the thermal anneal chamber.

- Sub B2
6. The system of claim 5 wherein the system controller controls the gas inlet to the chamber to provide a chamber environment having an oxygen content of less than 100 parts per million.

7. The system of claim 6 wherein the gas inlet is connected to a nitrogen gas source to introduce nitrogen into the chamber.

1 8. The system of claim 6 wherein the gas inlet is connected to a nitrogen gas source and a  
2 hydrogen gas source to introduce nitrogen and hydrogen into the chamber, wherein the hydrogen  
3 content is maintained at less than about 4%.

1 9. The system of claim 1 wherein the loading station comprises:  
2 i) one or more wafer cassette receiving areas;  
3 ii) one or more loading station wafer transfer robots for transferring a wafer between  
4 the loading station and the SRD station and between the loading station and the thermal anneal  
5 chamber; and  
6 iii) a wafer orientor.

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